

## **Exhibit 4**

RCE  
gmu

<p align="center"><b>Request For Continued Examination (RCE) Transmittal</b></p> <p>Address to: MS RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450</p>	Application Number	09/237,605
	Filing Date	January 25, 1999
	First Named Inventor	Richard J. Lazzara
	Art Unit	3738
	Examiner Name	Paul Prebilit
	Attorney Docket Number	247168-000035USC1

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application. Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on \_\_\_\_\_

ii. ☐ Other \_\_\_\_\_

b. ☒ Enclosed

i. ☒ Amendment/Reply

ii. ☐ Affidavit(s)/Declaration(s)

iii. ☐ Information Disclosure Statement (IDS)

iv. ☐ Other \_\_\_\_\_

2. **Miscellaneous**

a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of \_\_\_\_\_ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b. ☐ Other \_\_\_\_\_

3. ☒ The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments to Deposit Account No. 50-4181. I have enclosed a duplicate copy of this sheet.

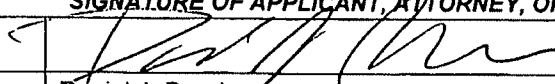
i. ☒ RCE fee required under 37 CFR 1.17(e)

ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

iii. ☐ Other \_\_\_\_\_

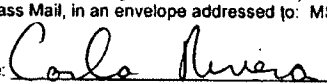
b. ☒ Check in the amount of \$ 810.00 enclosed for RCE.

c. ☐ Payment by credit card (Form PTO-2038 enclosed)

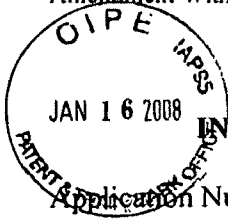
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature		Date	January 11, 2008
Name (Print/Type)	Daniel J. Burnham	Registration No.	39,618

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: January 11, 2008

Signature:  (Carla Rivera)

Application Serial No. 09/237,605  
Amendment With RCE



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application Number. : 09/237,605

Confirmation : 7280  
Number

Applicants : Richard J. Lazzara et al.  
Filed : January 25, 1999  
Title : Infection-Blocking Dental Implant  
TC/A.U. : 3738  
Examiner : Paul Prebilic


Docket Number : 247168-000035USC1  
Customer Number : 70001

Commissioner for Patents  
MS RCE  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATE OF MAILING**  
37 C.F.R. 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below:

January 11, 2008  
Date

  
Signature

**AMENDMENT WITH RCE**

Sir:

This Amendment is being submitted in response to the Decision on Request for Rehearing of the Board of Patent Appeals and Interferences decided November 13, 2007. The deadline for reopening prosecution of the present application is two months from the date of the Decision, i.e., January 13, 2008. Thus, this Amendment is being timely filed. Please amend the above-identified application as follows:

**Amendments to the Claims** are reflected in the Listing of Claims which begins on page 2 of this paper.

**Remarks** begin on page 6 of this paper.

### AMENDMENTS TO THE CLAIMS

Please replace the present claims with the following amended set of claims.

#### Listing of Claims:

Claims 1-50 (Cancelled)

51. (Currently Amended) A dental implant made of titanium metal, comprising:  
a smooth head portion for receiving a dental restoration component;  
a lowermost end opposing said head portion;  
a threaded portion for engaging bone between said head portion and said lowermost end;  
and  
a roughened region for facilitating osseointegration with said bone located on said threaded portion and extending to said lowermost end of said implant, said roughened region being uniformly acid etched with a second acid solution after a native oxide layer had been removed by contact with a first acid solution with minimum consumption of said titanium metal, said roughened region including an ~~to produce a substantially uniform~~ array of irregularities having peak-to-valley heights not greater than about 10 microns.

Claims 52-59 (Cancelled)

60. (Previously Presented) A titanium metal dental implant of Claim 51, wherein said first acid solution is aqueous hydrofluoric acid.
61. (Previously Presented) A titanium metal dental implant of Claim 51, wherein said second acid solution is a mixture of sulfuric and hydrochloric acids.
62. (Previously Presented) A titanium metal dental implant of Claim 51, wherein said irregularities include cone-shaped elements.
63. (Currently Amended) A titanium dental implant, comprising:

a head portion for receiving a dental restoration component, said head portion including a non-rotational feature for engaging said dental restoration component, said head portion having a smooth machined surface;  
a lowermost end opposing said head portion; and  
a threaded portion having continuous thread turns and being located between said head portion and said lowermost end, said threaded portion including a self-tapping region adjacent to said lowermost end, said threaded portion having an acid-etched surface for facilitating osseointegration with said bone, said acid-etched surface extending to said lowermost end of said implant and within said self-tapping region, said acid-etched surface being produced on said threaded portion after a native oxide layer has been removed from said threaded surface, said acid-etched surface having ~~a substantially uniform~~ an array of irregularities having peak-to-valley heights not greater than about 10 microns, said irregularities including cone-shaped elements.

64. (Previously Presented) The implant of claim 63, said acid-etched surface is located on said threaded portion below the first uppermost turn of said threaded portion.

65. (Previously Presented) The implant of claim 63, wherein said native oxide is removed by a first acid solution after which the resulting surface is etched with a second acid solution to create said acid-etched surface.

66. (Previously Presented) The implant of claim 65, said first acid solution is aqueous hydrofluoric acid.

67. (Previously Presented) The implant of claim 66, wherein said second acid solution is a mixture of sulfuric and hydrochloric acids.

68. (Currently Amended) A titanium dental implant, comprising:  
a head portion for receiving a dental restoration component, said head portion including a non-rotational feature for engaging said dental restoration component;

a lowermost end opposing said head portion; and  
a threaded portion having continuous thread turns and being located between said head portion and said lowermost end, said threaded portion including a cylindrical section and a tapered section immediately adjacent to said lowermost end, said cylindrical section being longer than said tapered section, said tapered section including a self-tapping region that extends to said lowermost end, said threaded portion having an acid-etched surface for facilitating osseointegration with said bone, said acid-etched surface extending from said lowermost end and into said cylindrical section of said threaded portion, said acid-etched surface being produced on said threaded portion after a native oxide layer has been removed from said threaded portion, said acid-etched surface having ~~a substantially uniform~~an array of irregularities having peak-to-valley heights not greater than about 10 microns, said irregularities including cone-shaped elements.

69. (Previously Presented) The implant of claim 68, said acid-etched surface extends from said lowermost end to at least an uppermost turn of said threaded portion.

70. (Previously Presented) The implant of claim 68, wherein said native oxide is removed by a first acid solution after which the resulting surface is etched with a second acid solution.

71. (Previously Presented) The implant of claim 70, said first acid solution is aqueous hydrofluoric acid.

72. (Previously Presented) The implant of claim 70, wherein said second acid solution is a mixture of sulfuric and hydrochloric acids.

73. (Previously Presented) The implant of claim 68, further including a neck portion between said head portion and said threaded portion.

74. (Previously Presented) The implant of claim 73, wherein said neck portion is a smooth machined surface, said head portion having a smooth machined surface.

75. (Previously Presented) The implant of claim 68, wherein said head portion has a smooth machined surface.

### **REMARKS**

Claims 51 and 60-75 are presently pending. Claims 51, 63, and 68 have been amended. Therefore, claims 51 and 60-75 remain pending in the present application.

### **Request for Continued Examination**

The Applicants are concurrently filing a Request for Continued Examination ("RCE") that accompanies this response.

Pursuant to 37 C.F.R. §§ 41.52, 1.198, and 1.114 and Manual of Patent Examining Procedure, Section 1214.07, applicants request that, upon entry of the RCE submitted herewith, the present application be reopened for prosecution.

### **35 U.S.C. § 112, Second Paragraph**

For the reasons previously set forth during the prosecution of this application and for those reasons set forth in the Applicant's Request for Rehearing of Decision on Appeal filed with the Board of Patent Appeals and Interferences on July 30, 2007, the Applicants respectfully disagree with the Board's new ground for rejection that claims 51 and 60-75 are indefinite.

However, to simplify the issues and to advance prosecution of this application, independent claims 51, 63, and 68 have been amended to remove the term "substantially uniform" from the phrase "substantially uniform array of irregularities." It is believed that these amendments will place this application on a quicker and less costly path to allowance, rather than filing an Appeal to the Federal Circuit.

With all due respect to the Board's Decision, the Applicants maintain that the previously pending claims were acceptable under 35 U.S.C. § 112. The specification discloses an acid-etched surface having a substantially uniform array of irregularities. One skilled in the art would surely understand that the acid-etched surface could not result in a "perfectly uniform" array of irregularities on a micron-level scale. Further, the figures in the specification do not show a surface having a "perfectly uniform" array of irregularities.

### **Previous Rejections Under 35 U.S.C. § 103**

The Applicants also respectfully submit that the presently pending claims are allowable over JP 3-146679 to Haruyuki et al ("Haruyuki"), U.S. Patent No. 4,826,434 to Krueger ("Krueger"), U.S. Patent No. 5,571,017 to Niznick ("Niznick"), or a combination thereof for at



least the reasons previously set forth in the Applicants' Appeal Brief Under 37 C.F.R. 1.192, which is incorporated by reference herein. More specifically:

1. Haruyuki's second step "smoothen" the underlying surface – it does not "roughen" it. Appeal Br., p. 7.
2. Niznick and Haruyuki do not teach all of the elements of claim 51. Appeal Br., p. 9.
3. Niznick and Haruyuki teach away from their combination. Appeal Br., p. 10-11.
4. Niznick teaches away from the claimed invention. Appeal Brief, p. 12.
5. Niznick and Haruyuki do not teach all of the elements of claim 63. Appeal Br., p. 13.
6. Niznick and Haruyuki do not teach all of the elements of claim 68. Appeal Br., p. 14.
7. Niznick and Haruyuki do not teach all of the specific elements of dependent claims 61, 67, and 72. Appeal Br., p. 15.
8. Dr. Porter's Declaration establishes secondary evidence of non-obviousness. Appeal Br., pp 15-16.

#### Conclusion

It is the Applicants' belief that all of the claims are now in condition for allowance and action towards that effect is respectfully requested. The Applicants respectfully request that a timely Notice of Allowance be issued in this case. If there are any matters which may be resolved or clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at the number indicated. The Commissioner is authorized to charge any fees that may be required (except for payment of the issue fee) to Nixon Peabody LLP, Deposit Account No. 50-4181, Order No. 247168-000035USC1.

Dated: January 11, 2008

Respectfully submitted,

By 

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